

CLAIMS

1.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, characterized by  
5 comprising the following steps:

- a) crude diacerein is dissolved in acetone/water,
- b) the pH is adjusted with a tertiary amine in acetone,
- 10 c) the solution is stirred for about six hours,
- d) an organic water immiscible-solvent is added and the solution is stirred,
- e) the organic solvent phase is separated from the acetone/water phase,
- 15 f) the extraction is repeated about 5 to 15 times with the organic water immiscible-solvent and, every time, the organic phase is separated from the acetone/water phase,
- g) the diacerein is crystallized from the acetone/water phase upon changing the pH from neutral to acid with a strong acid,
- 20 h) the crystallized product is centrifuged or filtered, washed with water and dried.

2.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by  
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acetylation and chrome oxidation, according to claim 1, characterized in that in step a), crude diacerein is dissolved, while wet, in a 1/1 acetone/water mixture in an proportion of about 13 times the volume of dry diacerein, and it is stirred until completely dissolved.

3.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 2, characterized in that in step b), the pH is adjusted at 6.6-7.2, preferably 7.0-7.2, with a solution of a tertiary amine in acetone.

4.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 3, characterized in that a trialkylamine with C1-4 alkyl groups may be used as a tertiary amine, preferably selected from the group: trimethylamine, triethylamine, tripropylamine, methyldiethylamine, diethylpropylamine, among which triethylamine is most preferred.

5.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 2, characterized in that in step c), stirring lasts about six hours in order for the diacerein to dissolve completely.

6.- A method to purify crude diacerein by the

toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 1, characterized in that in step d), once the diacerein is completely dissolved, it is purified by organic extraction  
5 with a water immiscible-solvent , which is selected from the group consisting of: benzene, toluene, xylene, isobutyl acetate and ethyl acetate, among which toluene is most preferred.

7.- A method to purify crude diacerein by the  
10 toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 1, characterized in that in step e) the extraction of diacerein with the organic water immiscible-solvent is performed, a volume of toluene equivalent to 1.6 volumes of  
15 the dry diacerein is added to the dissolution; the dissolution is stirred and the organic phase is separated from the acetone/water solution; about 5 to 15 repeated extractions (step f) are performed with the same amount of organic water immiscible-solvent and with the same  
20 proportion of the solvent to dry diacerein.

8.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 7, characterized in that a minimum of 10 repeated extractions  
25 is preferred.

9.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 7, characterized in that about 15 repeated extractions with the organic solvent are preferably performed.

10.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 1, characterized in that in step g), after at least 10 extractions with the organic water immiscible-solvent, the diacerein is crystallized in water at a pH between about 2.5 and about 3.0 with a strong acid, such as sulphuric, hydrochloric or phosphoric acid.

11.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 10, characterized in that 80% phosphoric acid is preferred.

12.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 1, characterized in that in step h), it is centrifuged or filtered, washed with water and dried.

13.- A method to purify crude diacerein by the toluene approach, wherein the diacerein is obtained by acetylation and chrome oxidation, according to claim 1,

characterized in that diacerein is obtained under a 90-93% yield, with an average purity of 99.17%, a content of aloemodin of about 7-10 ppm and a content of chromium of about 20-25 ppm.